

# **IN301 STATISTICS PRINTER**

## **OPERATOR'S MANUAL**

### ***Inscale Measurement Technology Ltd***

7 Heron Close, St. Leonards-on-Sea, East Sussex TN38 8DX United Kingdom

Tel: +44(0)1424 200722 Fax: +44(0)1424 443976 Email: [sales@inscale-scales.co.uk](mailto:sales@inscale-scales.co.uk)

***Http: [www.inscale-scales.co.uk](http://www.inscale-scales.co.uk)***



***Solutions in Weighing Technology***



### **Manufacturer's Declaration of Conformity**

This product has been manufactured in accordance with the harmonised European standards, following the provisions of the below stated directives:

Electro Magnetic Compatibility Directive 89/336/EEC

Low Voltage Directive 73/23/EEC

Inscale Measurement Technology Ltd.  
7 Heron Close  
St. Leonard-on-Sea  
East Sussex TN38 8DX  
United Kingdom

### **FCC COMPLIANCE**

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. The equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Shielded interconnect cables must be employed with this equipment to insure compliance with the pertinent RF emission limits governing this device.

Changes or modifications not expressly approved by Inscale could void the user's authority to operate the equipment.

## **IN301 PRINTER WITH STATISTICS**

The IN301 Printer is a general purpose thermo tally roll printer specifically designed to work with the Inscale series of balances.

The Printer with Statistics allows the user to collect data from Inscale balances and then print statistical information about the data. Alternately it can be set as a standard printer to collect but without the statistics.

The printer comes preset to work with the default RS-232 interface found on the Inscale balances. It can easily be changed to work as a standard printer with other equipment.

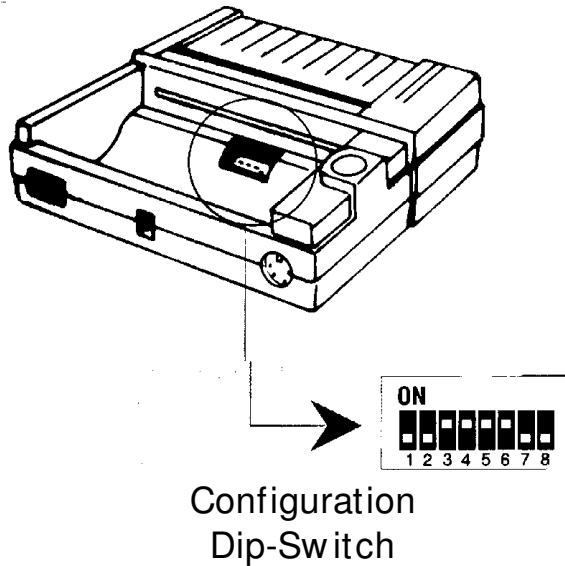
The printer is easy to use with only a paper feed button (grey button) and a print switch (red button). The Print switch send commands to request data from Inscale balances.

# SPECIFICATIONS

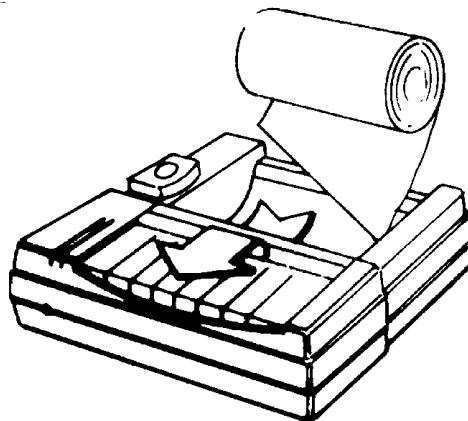
Power Supply	8.5 to 14VDC or 7 to 10VAC 15 Watts when printing 3 Watts when idle
Mains Supply	As required Standard adapters are 230VAC 50/60Hz (UK or European) or 115VAC 50/60Hz USA
Environment	5 to 35°C 10 to 80% humidity, non-condensing
Printer	Dot matrix Thermo printer Bi-directional printing 0.75 lines per second 40 or 80 characters per line
Paper	112mm thermo paper PH65 or HONSHU Standard 20 meter roll maximum diameter 48mm.
Size	60 x 180 x 150mm 0.6kg
Interface	RS-232 or RS-242 (TTL) 5 pin DIN Connector 1200, 2400, 4800 or 9600 baud 8 bit or 7 bit With or without parity

## PAPER LOADING

See diagram. Cut paper at angle and feed into slot from rear. Press and hold the Paper Feed button until the paper passes through the printer. Do not pull paper or force through the slot. If the paper does not feed easily check you are using the paper entry slot and there are no obstructions in the paper path.



Paper Loading  
Note direction of paper roll



# CONFIGURATION

The printer is set with the dip-switches under the paper roll, see drawing on page 3.

When configured as a statistics printer it will work with the Inscale balances only. The data from the balances will be collected and statistical information on the readings from the balance can be printed. The data and time can also be printed with the data.

When the printer is set for standard printing it can be used with most RS-232 devices to print the data from them. The data and time are not available.

To reset the parameters turn the printer off. Set the switches as desired and then turn the printer on.

		With SW8 Off Statistics disabled				With SW8 On* Statistics enabled
		1200 on	2400 off	4800 on	9600 baud off	Select Inscale Balances* Off
SW1		on	on	off	off	Off
SW2		on	on	off	off	Off
SW3	On Off	8 bit data 7 bit data				not used
SW4	On Off	Check Parity No Parity check				Increment number* Do not print number
SW5	On Off	Parity Even Parity Odd				Data/time enabled* Data/Time not printed
SW6	On Off	80 column 40 column				Print all statistics* Print only number of readings and total
SW7	On Off	High Quality Print (slow) Normal Print (fast)				High Quality Print (slow) Normal Print (fast)*

\*The default settings are:

Operate with Inscale balances for statistics			
4800 baud	Date and time enabled	40 column	
8 bit	Line numbering enabled		
no parity	Fast printing enabled		

## INTERFACE

Cable between printer and balances

Printer

5 pin DIN connector.

Inscale Balances

9 Pin D-Subminiature Socket

Pin 1 RXD -----

Pin 2 DTR -----

Pin 3 GND -----

Pin 4 nu

Pin 5 TXD -----

Pin 3 Data from Scale

Pin 1 Not used by Inscale balances

Pin 5 Signal ground

Pin 2 Data to scale

Pin 7 Connected to Pin 8

Pin 4 Connected to Pin 6

# STATISTICS OPERATION

The printer has 2 switches to assist in printing statistical information for data received from balances. The Paper Feed switch (Grey button) normally advances the paper. In addition the printer has another switch, PRINT (Red button) that is used to send the Print command to balances and in conjunction with the Paper Feed for some operations.

When power is turned on the Statistics function is automatically enabled if SW8 is ON.

Send data to the printer from the scale by pressing the PRINT key on the printer, pressing the PRINT key on the scale or setting the scale to automatically print when stable.

During data collection the last data can be erased if in error by pressing the PF then PRINT switch in sequence.

Continue to collect data in this manner. At any time data collection can be stopped by holding down Paper Feed and then pressing PRINT and releasing both buttons.

A message showing the options is displayed.

PRINT	Press PRINT to get a Statistics Report
PRINT + PF	Start a new Series by holding PRINT then pressing the Paper Feed switch
PF + PRINT	Continue by holding Paper Feed then pressing the PRINT switch

The Statistics Report consists of the following information.

n	=	number of results
sum x	=	sum of all results
$\bar{x}$	=	average
s	=	standard deviation (n-1)
srel	=	relative standard deviation
min	=	minimum value
max	=	maximum value
R	=	range (max – min)

The equations used are:

$$s = \sqrt{\frac{\sum (x_i - \bar{x})^2}{n-1}} \quad \text{and} \quad srel = \frac{s}{\bar{x}}$$



During the time the data collection is suspended the printer can be used for normal printing as long as the RS-232 settings are 4800 baud, no parity, 8 bit.

Hold Paper Feed + press PRINT to continue with the data collection procedure or hold PRINT then press Paper Feed to start a new set of data collection.

If the printer detects a change in format or an error during data collection a message of \* Data Error \* will be printed. If the message does not clear when the balance data is sent to the printer it may be necessary to turn the printer off/on before starting again.

## NORMAL PRINTING

If the printer is changed to perform as a normal serial printer (SW8 OFF) then the setting of the other switches will need to be changed to match the baud rate, parity and other printer settings.

Turn power off when setting the switches and the new parameters will become active when the power is turned back on.

The printer generally uses the IBM Proprinter commands, with additional special codes to print the date and time.

ESC c or ESC C	Print current time
ESC d or ESC D	Print current date

## SETTING DAY AND TIME

Hold the Feed key down when power is turned on. The printer will go into a date/time setting mode. Regardless of internal switch settings proceed as follows.

An ASCII string must be sent to the printer to set the date and time. One method of doing this is to connect the printer to a PC or other terminal device. Send the following commands to the printer from the DOS prompt.

```
C:\> MODE COMx:1200,E,7,1<enter>
C:\> COPY CON COMx<enter>
C:\> Tyy;mm;dd;hh:mm;ss<enter>
C:\> CTRL-Z<enter>
```

Comx is the active Com port the printer is connected to. For example to set 18 May 1999, 9:25 AM send T99;05;18;09;25;00<enter> CTRL-Z<enter> then turn power off then back on to begin normal operation. The baud rate and parity should be as set above regardless of how the printer is configured using the dip-switches.

A program to set the date and time is available from Inscale. This program will run under Windows. Contact us for details.



© Copyright by Inscale Measurement Technology Ltd. All rights reserved.  
No part of this publication may be reprinted or translated in any form or  
by any means without the prior permission of Inscale.

Inscale reserves the right to make changes to the technology,  
features, specifications and design of the equipment without notice.

All information contained within this publication was to the best of our  
knowledge timely, complete and accurate when issued. However, we are  
not responsible for misimpressions which may result from the reading of dated material.

The latest version of this publication can be found at our Website  
(see below)

***Inscale Measurement Technology Ltd.***

7 Heron Close, St.Leonards-on-Sea  
East Sussex, TN38 8DX, U.K.

Email: [sales@inscale-scales.co.uk](mailto:sales@inscale-scales.co.uk)  
Website: <http://www.inscale-scales.co.uk>